ERIC Document Resume	See Instruction Sheet	DATE OF RESUME 9/22/65	DATE RECEIVED

A. PUBLICATION DATA

1. ERIC NUMBER	2. ORIGINATOR CONTROL NO(S).	3. IDENTIFICATION NO.
ED002382	2737	N.A.

4. AUTHOR(S): N.A.

5. TITLE OF DOCUMENT ABSTRACTED:
Some Feedback from Discussion Groups-National Conference on the Selection and Use of Programed Instruction, June 26,27,28, 1963

6. PUBLICATION TITLE: N.A.

7. EDITOR(S): N.A.

8. PLACE OF ORIGIN
ORG. National Education Association
ST. Detroit Symposium
CITY, STATE Washington, D.C.
TELE. EXT.
INST/LOC CODE

9. PUBLISHER OR SOURCE
National Education Association
Detroit Symposium, Washington, D.C.

10. VOL.	11. PAGES	12. MO./YR.	13. TOTAL PP.
N.A.	N.A.	1963	4

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TYPE OF REPORT
PROPOSAL ☐
IN-PROGRESS ☐
FINAL ☒
FOLLOW-UP ☐

OTHER ERIC REFERENCES:

ERIC SATELLITE CODE

B. INDEXING DATA

14. SUBJECT AREA

15. TYPE OF ENDEAVOR Report

16. INDEXING TERMS (6-12)

programed instruction	programed instruction	administration	
programed instruction evaluation			
programed instruction subjects			

17. ABSTRACT (MAX. 250 WORDS)

Conference groups met to clarify positions and underscore problems on programed instruction. Programed instruction should develop an image that connotes a philosophy of education with attention to the specifics of content, shaping, and program selection and use. The popular appeal of programed instruction may go beyond present practice and focus on the assumptions that it makes about learning and instruction: if the student does not learn, it is the instruction that is at fault; the individual performer is unique and should receive instruction fitted to him; learning is facilitated by continuous knowledge of progress; the student's overt behavior provides the basis or feedback by which progress is estimated; and whatever is learned should be analyzed for some basic orderliness.

The conference groups presented their concerns for programed instruction in question form. Questions dealing with evaluation were: What are the objectives of the program for students in behavioral terms and for teachers in overall instructional terms?; What should a commercial program have whenever possible?; For what purposes should the body of the program be examined? Questions pertaining to administrative problems concerned scheduling, training of teachers, costs, orientation of staff, children and parents, building space, advantages and disadvantages of machine devices, and reports of pupil achievement. Other questions focused on teacher role and pupil role.

Several groups noted that programing would take different forms in different subject fields as well as within subjects. A list of 14 questions presented criteria for research.

ERIC No.

18. SOURCE OF ABSTRACT

C. FUNDING DATA

19. SUPPORTING ORGANIZATION	20. DIVISION OR DEPT.	21. CONTRACT NO. / PROJECT NO.
	22. TOTAL COST OF PROJECT	
	23. DURATION OF PROJECT	U.S. Department of Health, Education, and Welfare Office of Education

ERIC Form 1

ED002382

INSTRUCTIONAL TECHNOLOGY - U.S.C.
2737

Boyd
from NEA
Detroit
Symposium

Some feed-back from discussion groups

Although Conference groups were not organized to be policy forming, we did have some groups which clarified positions and underscored problems. Here are some samples.

PROGRAMED INSTRUCTION AND THE EDUCATIONAL PROCESS

Programed Instruction must develop an "image" that connotes a philosophy of education with attention to the specifics of content, shaping, program selection and use.

The popular appeal for programed instruction may well go beyond present practice and actually focus upon the refreshing assumptions that it makes about learning and instruction. Consider these basic assumptions:

1. If the student does not learn, it is the instruction that fails.

2. The individual learner is a class of one. This means that the individual with his uniqueness is entitled to instruction fitted to him, and instruction will not be evaluated in terms of class-group performance seen as normal curves. Rather, it must be appraised on the basis of whether each individual reaches a specified minimum level of performance.

3. Learning is facilitated by continuous knowledge of progress, by a high diet of success, by orderly progress and sharp targets for instruction, and by empirically-determined steps protested on like-minded students with similar backgrounds.

4. Whatever is to be learned should be analyzed for some basic orderliness.

5. As a corollary, if a learner is to be guided in his learning, the student's overt behavior provides the basis or feed-back by which the teacher estimates if the learning is progress.

One group felt that programmed instruction can reach its full potential if, instead of concerning itself simply with subject-matter coverage, it gives first consideration to developing and enunciating a basic educational philosophy which will underlie and inform all programming efforts. Pedagogy should become as important a criterion as content. How the student is led to master the subject-matter was deemed a more important evaluative concern than the amount of material covered. It was agreed that programmed instruction should strive to effectuate positive qualitative changes both in a student's learning procedures and his attitudes toward his subject. Achievement via programmed instruction should be the result of a multitude of intellectual operations rather than a matter of fact-collection. The programming should, insofar as possible, be teaching the student how to learn as well as what to learn, a pedagogic goal which will enable the student to transfer to other areas and problems not only information but also learning skills.

This group couched its concerns in question form.

I. Evaluation of Program by potential users at all levels.

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A. What are the objectives of the program?

1. For students - in behavioral terms.
2. For teachers - in overall instructional terms.

B. What should a commercial program have whenever possible?

1. Prerequisite tests
2. Pretests
3. Post-tests

C. With what purposes should we examine the body of the program itself?

1. Content
2. Pedagogy (How the student is asked to think his way through the program, i.e., reason, discovery, problem-solving.)
3. The relationship of fact-finding to conceptualization.
4. Attention to training for transfer.
5. The communication of long-range and short-range goals to students.
6. The content of the program in relation to existent curriculum content.
7. Built-in motivation for the student.
   a. To continue through the program.
   b. To develop and maintain positive attitudes toward the subject-matter and learning in general.
   c. To recognize and accept the point that the primary responsibility for learning is his.

II. Some Administrative Problems

A. What effect(s) will a program have upon scheduling and the existent curriculum?

B. What training of teachers is required before a program is used?

1. Requirements that fall upon teacher-training schools.
2. Requirements for inservice training of existent staff.

C. What are the costs of acquiring a program, training teachers to use it, and evaluating it?

D. Before initiating the use of a program, must the purposes, procedures, and methods of evaluation be fully outlined and understood by all involved (staff, children, and parents)?

E. What are the logistics (building, space, special needs, etc.) that must be considered?

F. What are the advantages and disadvantages of the machines and devices that might be utilized in presenting the program?

G. What will be the effect of the program on the current procedures of reporting pupil achievement to pupils, parents, and other institutions?

III. Teacher Role

A. What are the effects of the program on teacher procedures?

B. How can the teacher reinforce the program and the program reinforce the teacher?

C. What effect will the self-pacing quality of programmed instruction have upon the teacher's work in the classroom?

D. How will the teacher evaluate the pupil's work?

E. What should be the responsibility of the teacher in outlining long-range and short-range objectives for the class?

IV. Pupil Role

A. What is the import of the program on the pupil's activities within the classroom and on his outside preparatory work?

B. Are there provisions for continuous feedback from pupils concerning their attitudes and progress while involved in the program?

WILL PROGRAMING TAKE DIFFERENT FORMS IN DIFFERENT SUBJECT FIELDS?

Several groups noted that the decision about the hardware, the audio or the visual manner of presentation would need to be adjusted to the different abilities (reading, sound discrimination, etc.), backgrounds, and interests which the learners can initially bring to the programed instruction. The inherent structuring of a subject field calls for special emphasis, too.

The social studies group wondered why the social studies are among the last areas to be programed. Do the purposes and structure of the social studies present special considerations and challenges for programing? Should we be satisfied if programs present the subject-matter efficiently? Could programing also provide for social learnings? Is it possible to teach attitudes which will guide students civic responsibilities? Can we teach a method of identifying diverse opinions and evaluating them when interpretation is necessary? Can programed instruction teach openmindedness? Should it? Will programed materials have to be complemented with other instructional patterns and materials.

The special education group noted that much of appraisals in general-comparisons of machines vs books is too superficial. It fails to consider whether the manner of presentation and the controls open to learners avenues of instructio otherwise not available.

Programs paced by a TV schedule generated real controversy in groups. Most all groups reported arguing from some fundamental principles. The issue of pacing was a critical one: when and if you wanted self-pacing; when and if you wanted the learner to be paced. As M. Daniel Smith had stated in his opening address, we will probably want to be applying principles of programing to our wide variety of instructional media, when appropriate; and we will have to learn how to combine the programed materials withother forms of presentation. The groups tended to deal with this on a form-follows-function basis. Clarification of purpose, learning styles, basic nature of content, media limitations: these factors stood out.

CRITERIA

You might be interested in some of the questions we collected for Dr. Lumsdaine. They reflect the importance of the USER's preparation and the CONTEXT of setting for the usage.

1. Criteria for efficient, productive, initial implementation of programed material--i.e., teacher orientation, in-service, also initiative planning, etc.
2. Criteria for selecting students (or teachers, or curricula) who would most benefit from programed materials.
3. Criteria for selecting teaching machines.
4. What differences should there be in evaluating:
   Short programs or supplementary or full-course programs
   in-class or out-of-class programs
   Programs that do total teaching as compared to that which will do part teaching.
5. How can you recognize when motivation is built into a program, and could this be considered a criterian for choosing a program? To what extent should the learner's personality--introversion, extroversion, dependence--be part of the criteria?
6. Is there any way to evaluate supplementary materials that direct the teacher to motivate students to take programs?
7. Is it reasonable to expect local schools to apply the criteria, or should there be a national screening? (One group developed a formal recommendation that the NEA should sponsor an agency that would report-out programs, like Mental Measurements Yearbk.)
8. What standard information about the testing of a program is reasonable to request of the publishing industry? (If costly researching is required will school purchases be enough to"keep the stream running."
9. Should criteria consider the logistics--the sorting, filing, record keeping, storing, scheduling, costing, re-education, and compatability with other school materials and facilities?
10. How much can be expected of local schools, teachers and administrators to apply criteria, test out programs?
11. Is there a danger that criteria which establish national standards may in practice inhibit programmers from essential innovations?
12. Will national standards in P.I. and testing lead to national curriculum?
13. If standards are higher than actual practice generally, does this generate false promise of what is really expected of a program?
14. Instead of putting so much importance on criteria for programs, should we be more concerned with: What is expected of a school? or What is expected of the teacher? Or What entering behavior or preliminary behavior is necessary for the student? It is our experience that too often we make rigorous demands on publishers and manufacturers, while failing to make comparable requirements that teachers are thoroughly familiar with their texts, the tools of their trade and the nature of their students.

FORESIGHT (by Group #3)

In 1968 - wide use of P.I.; multi-media presentation of P.I.; more hardware, especially ETV.

In 1973 - expanded curriculum in the elementary grades, in breadth and depth; individual tracks in school programs; more involvement of the home in education, more and better adult education.

National Conference on the Selection and Use of Programed Instruction, June 26, 27 and 28, 1963. Phil C. Lange